

# The Healthcare Case Study

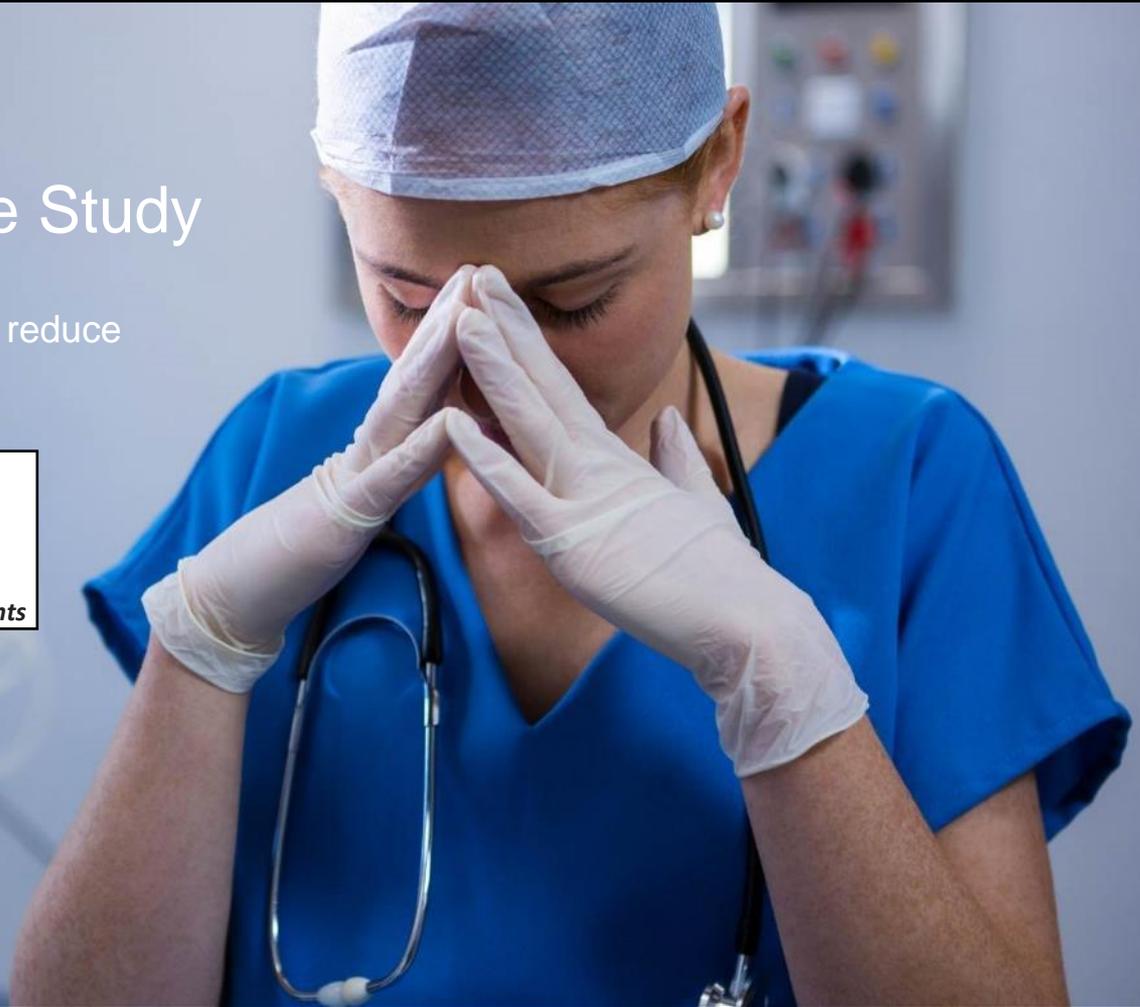
Leveraging Brain Science and AI to reduce patient harm and death



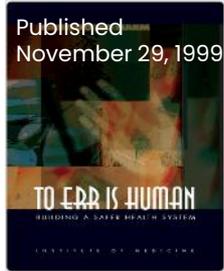
[Pilot Training Conference](#)

[Day 1 – Tuesday 30th April 2024 – Session 3](#)

***Adaptive Learning in High-Stakes Work Environments***



# “Islands of excellence surrounded by oceans of mediocrity”



**268**

Avoidable Deaths per day

National Institutes of Health



2023 Estimate

**328**

Avoidable Deaths per day



Typical Knowledge Across MD's, Nurses and Technicians



# “Islands of excellence surrounded by oceans of mediocrity”



>50%

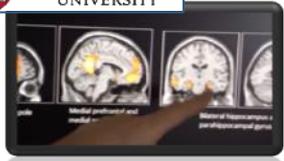
Reduction in training time

~80%

Reduction in Patient Harm

Typical Knowledge Across MD's, Nurses and Technicians





# Advanced Brain Science of Human Learning<sup>4</sup>

1953

27 years old



Henry Molaison (“HM”)

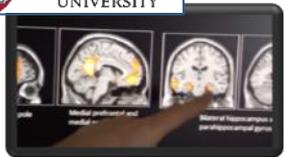
82 years old



Hippocampus



All new memory (learning)  
is created in the Hippocampus  
and distributed for storage  
during sleep.



# Advanced Brain Science of Human Learning<sup>5</sup>

## 1992

First fMRI Images published

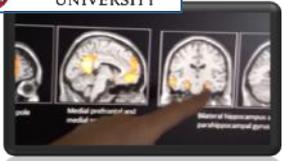
 Massachusetts General Hospital  
Founding Member, Mass General Brigham

ADVANCES IN MOTION

### Kenneth Kwong, PhD

Associate Professor, Martinos Center for Biomedical Imaging,  
Massachusetts General Hospital

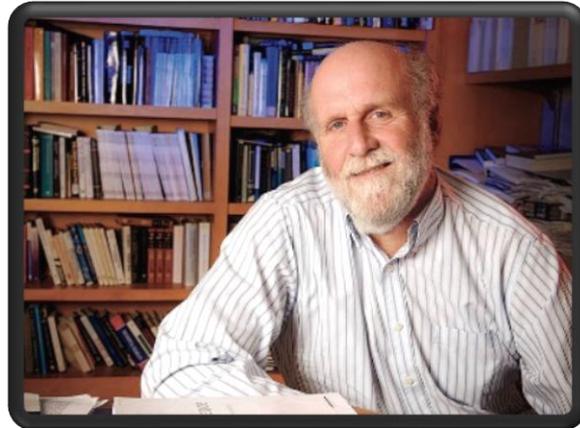




# Advanced Brain Science of Human Learning<sup>6</sup>

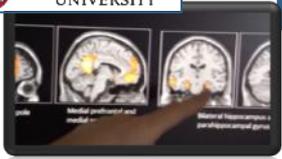
1993

Dan Schacter, PhD



1953 "HM"





# Engaging the Neuro Mechanics of Human Learning <sup>7</sup>

2011

Robert Bjork, PhD, UCLA  
Bjork Center of Learning  
and Forgetting

UCLA



Dan Schacter, PhD

 HARVARD UNIVERSITY

## “Triggers & Switches”

Repetition  
Emotion  
Elaboration Attention  
Salience Retrieval  
Priming  
Feedback  
Spacing  
Honesty  
Motivation



Rich Mayer  
PhD, UCSB



Roddy Roediger  
PhD, Washington University at St.  
Louis



Robert Birnbaum  
PhD, MD, Vice President of Professional  
Development & Implementation Science at  
Mass General Brigham



Elizabeth Bjork  
PhD, UCLA



Kathleen McDermott  
PhD, Washington University at St.  
Louis



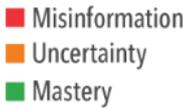
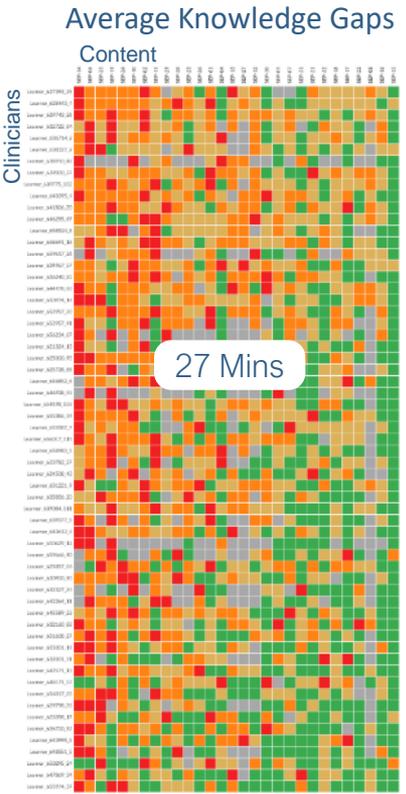
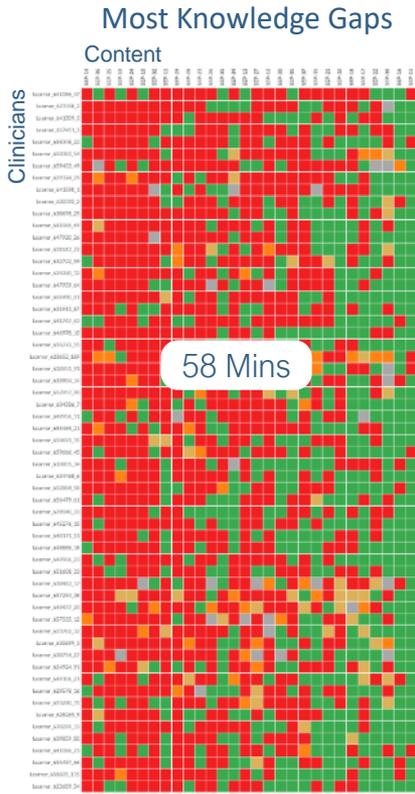
Chad Lane  
PhD, University of Illinois

2 Million learners per year  
4.3 Billion Learner Interactions

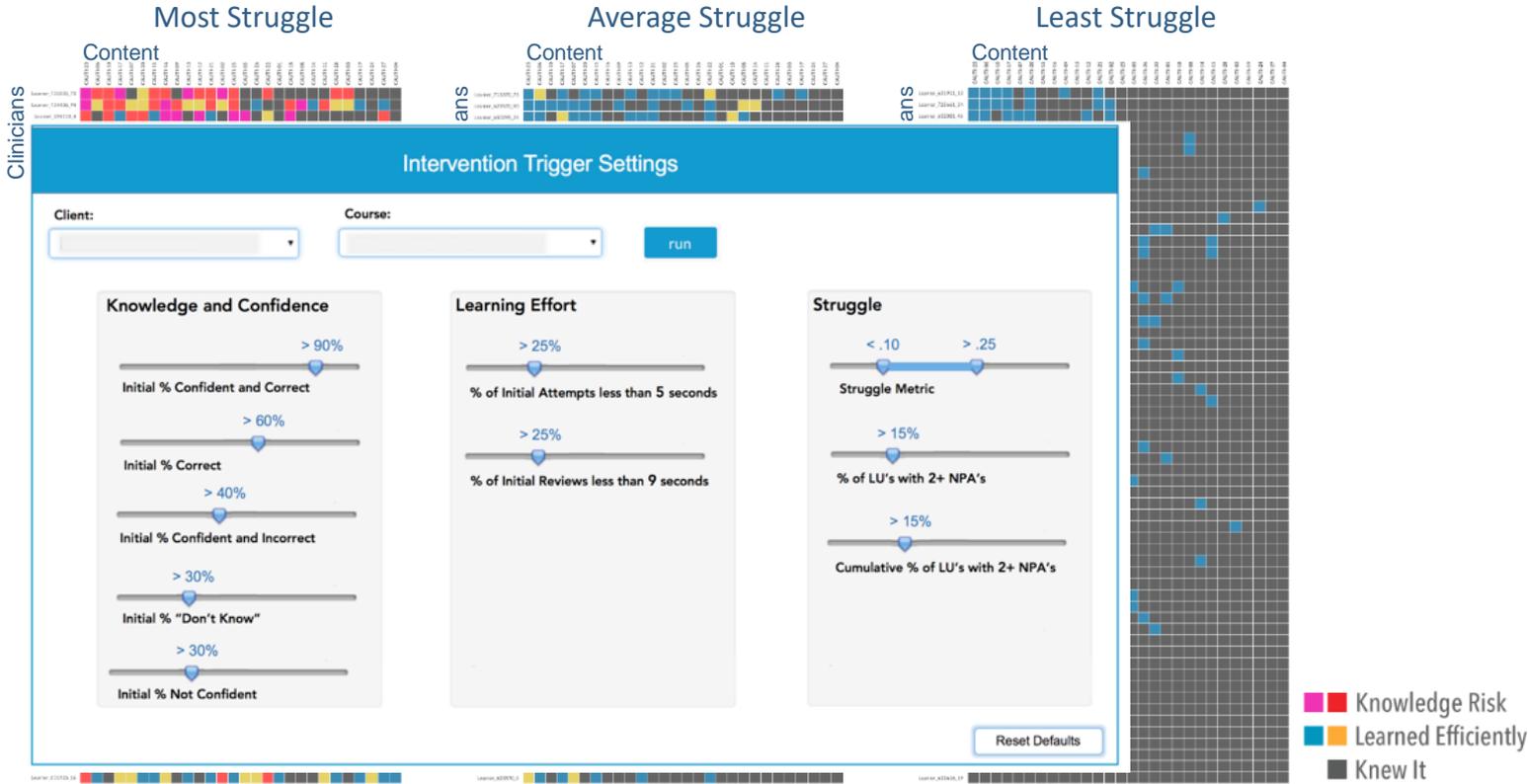


# Advanced Visual Analytics

Training Efficiency: 3,700 Nurses at 21 Hospitals—CLABSI



Training Efficiency: 3,700 Nurses at 21 Hospitals—CLABSI



# Advanced Visual Analytics

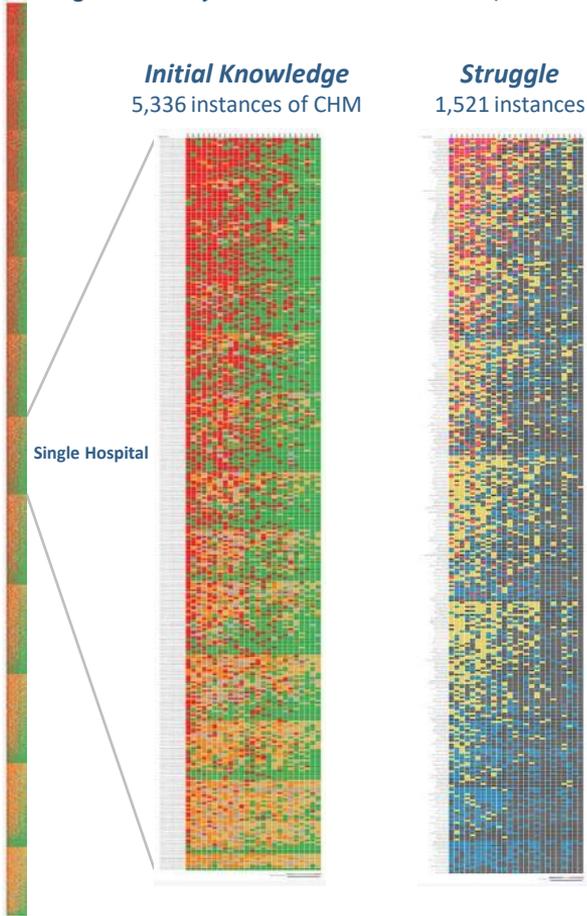
Training Efficiency: 3,700 Nurses at 21 Hospitals—CLABSI



- **23 Intermountain hospitals**
- **3,707 nurses trained**
- **25,129 instances of CHM**
- **29,838 instances of Uncertainty**

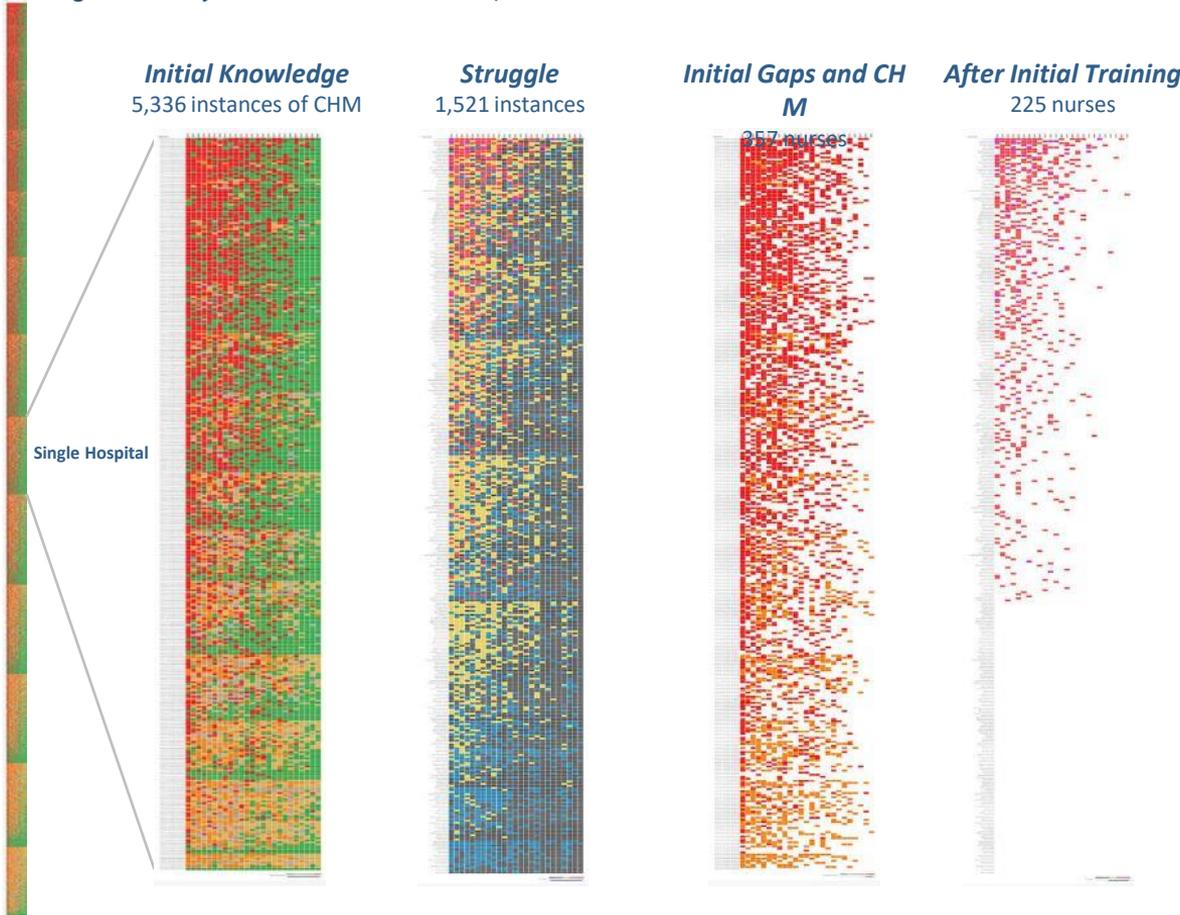
# Advanced Visual Analytics

Training Efficiency: 3,700 Nurses at 21 Hospitals—CLABSI



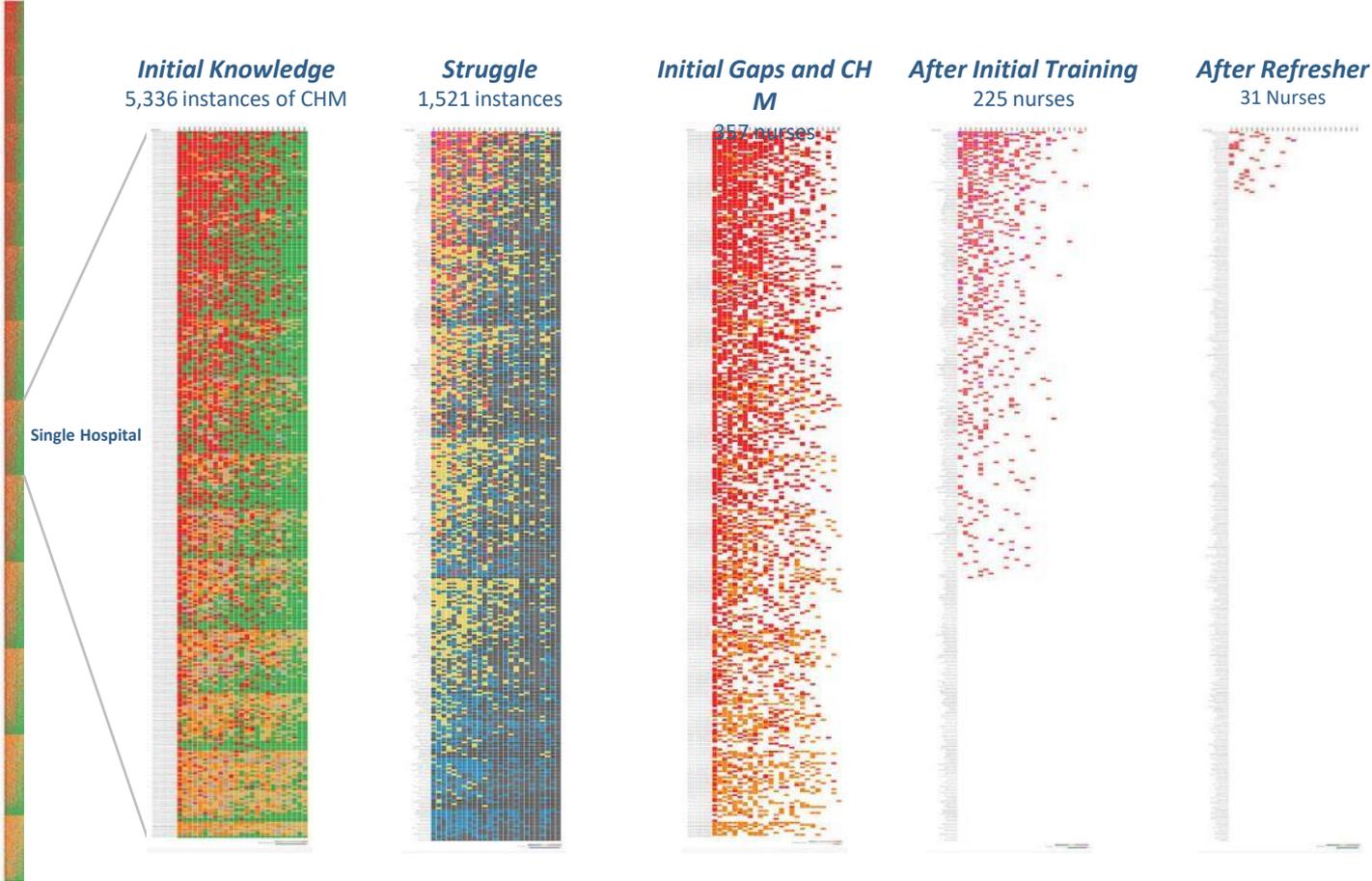
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Training Efficiency: 3,700 Nurses at 21 Hospitals—CLABSI



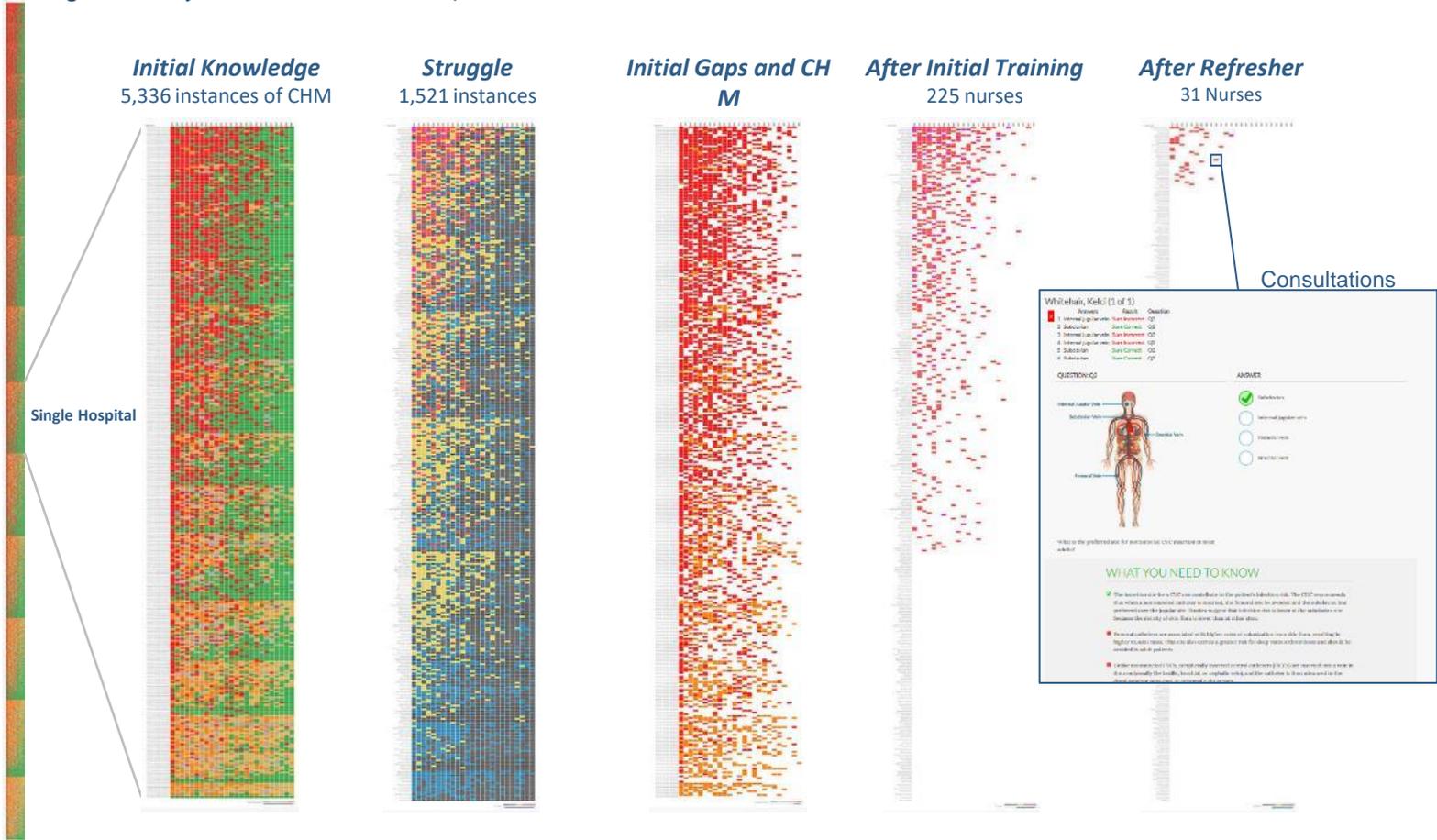
# Advanced Visual Analytics

Training Efficiency: 3,700 Nurses at 21 Hospitals—CLABSI



# Advanced Visual Analytics

Training Efficiency: 3,700 Nurses at 21 Hospitals—CLABS1

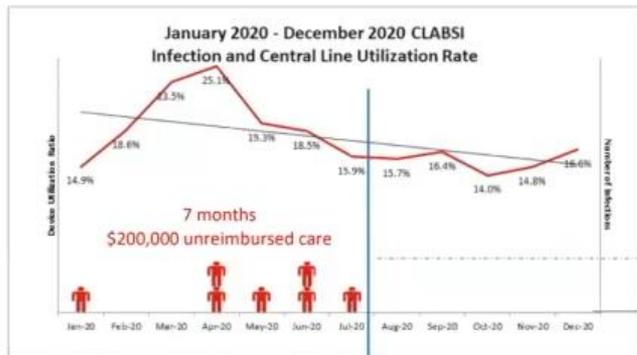


# Results/Outcomes

- Amplifire CLABSI course, modified for SCL Health policies, procedure, and products
- Additional education tailored to common knowledge gaps



Identified and remediated knowledge gap and CHM in our staff

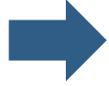


Data provided by SCL Health

Amplifire CLABSI Training Rollout

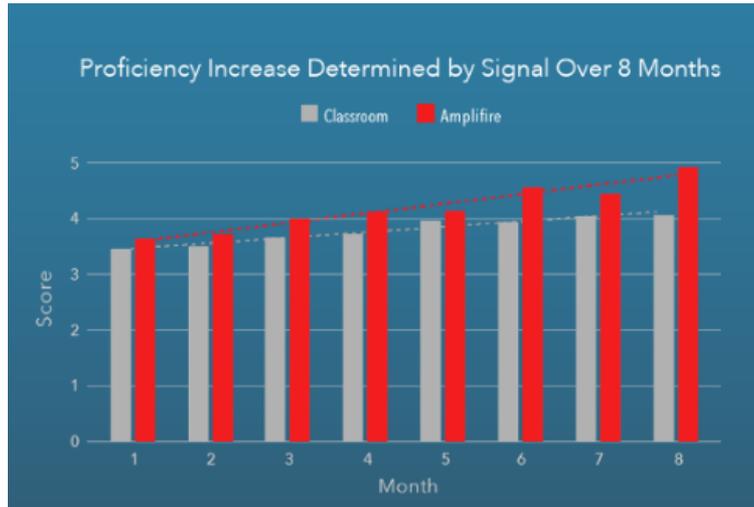
## 8 Hrs.

Classroom Training



## 1 Hr. 5 mins

Adaptive Platform Training



## 19.8%



Improved Proficiency

 Providence

## 44,000

Hours returned to clinical care in 8 months

 Scripps

## 28,000

Hours returned to clinical care in 2022

# Medivac Pilot Training



# Taking on Medivac Pilot Training

## 84%

reduction in Training Time

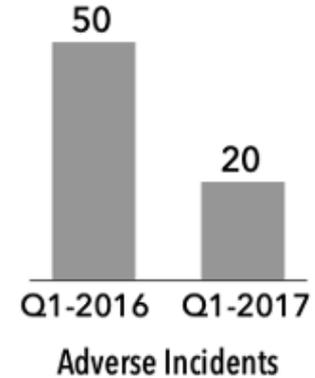
### FAA Mandatory Training

Time in Legacy Training: 30.90 hours

Time in Amplifire: 4.87 hours

## 60%

reduction in Adverse Incidents

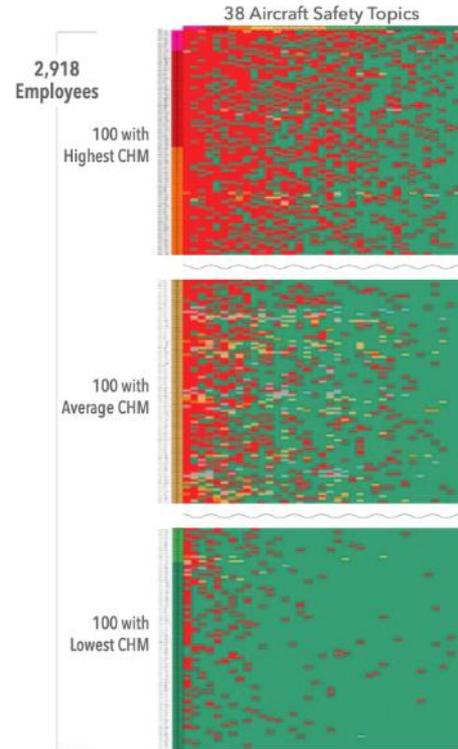
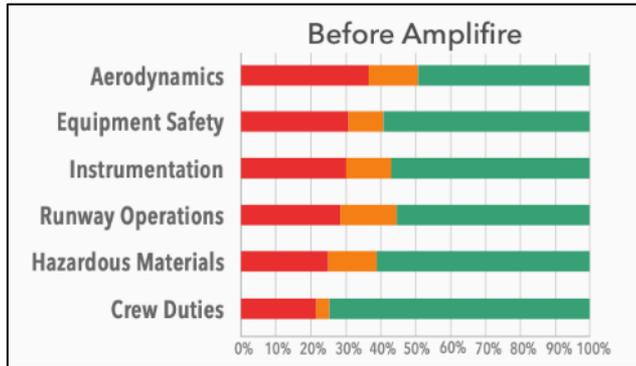


# Taking on Medivac Pilot Training

## FAA Mandatory Training

Time in Legacy Training: 30.90 hours

Time in Amplifire: 4.87 hours



**82%**  
Retention at 12-months

# AI Content Assistant

# Embedded AI

The screenshot displays the Amplify web interface. At the top, the 'amplify' logo is on the left, and navigation links for 'Account', 'Authoring', and 'Learning' are on the right, along with a user profile for 'John Smith'. Below this is a secondary navigation bar with 'Courses', 'Resources', 'Questions', 'Pages', 'Tags', and 'Search'. The main content area is titled 'The Science Institute - Introduction to Biology' and 'Biology Level I'. It features a question editor for 'Exploring the Steps of the Scientific Method in Biology'. A warning message states: 'You can't publish content with publishing issues, view issues here'. The question editor includes a 'Question Intro' and a 'Question Stem\*'. The 'Answers' section shows three radio button options, with the first one selected. The right sidebar, titled 'AI Assistant', contains various configuration options: 'Source content' (Scientific Method Basics), 'Expert Tone' (Biology Professor), 'Audience' (Biology Level I), 'Learning Objective' (Steps and process of using the scient...), 'Known Mistakes' (Select), 'Prompt template' (Write a question of low difficulty for L...), and 'AI Prompt' (Write a question of low difficulty for the learning objective steps and process of using the scientific method.).

amplify Account Authoring Learning John Smith

Courses Resources Questions Pages Tags Search

The Science Institute - Introduction to Biology  
Biology Level I

Back Next

### Exploring the Steps of the Scientific Method in Biology

Preview Edit

You can't publish content with publishing issues, view issues here

Tags Cell Structures Cell Membrane AP Biology Review

This question was create with AI Shared question

#### Question

##### Question Intro

Welcome to the fascinating world of biology! As budding biologists, it's crucial to understand the scientific method, a fundamental tool that helps us explore and uncover the mysteries of the natural world.

##### Question Stem\*

Which of the following options correctly outlines the steps of the scientific method, a systematic approach used by biologists to investigate and understand natural phenomena?

#### Answers

- Observation, Hypothesis, Experimentation, Analysis, Prediction, Conclusion
- Hypothesis, Analysis, Conclusion, Observation, Experimentation, Prediction
- Experimentation, Observation, Analysis, Conclusion, Hypothesis, Prediction

Add answer +

#### AI Assistant

Source content  
Scientific Method Basics

Expert Tone  
Biology Professor

Audience  
Biology Level I

Learning Objective  
Steps and process of using the scient...

Known Mistakes  
Select

Prompt template  
Write a question of low difficulty for L...

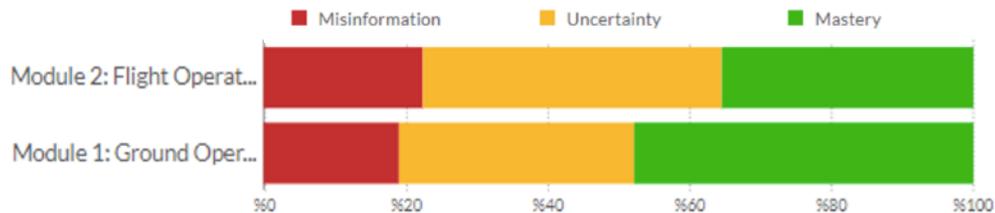
AI Prompt  
Write a question of low difficulty for the learning objective steps and process of using the scientific method.

Create for me

# Boeing 737 Max Return to Service

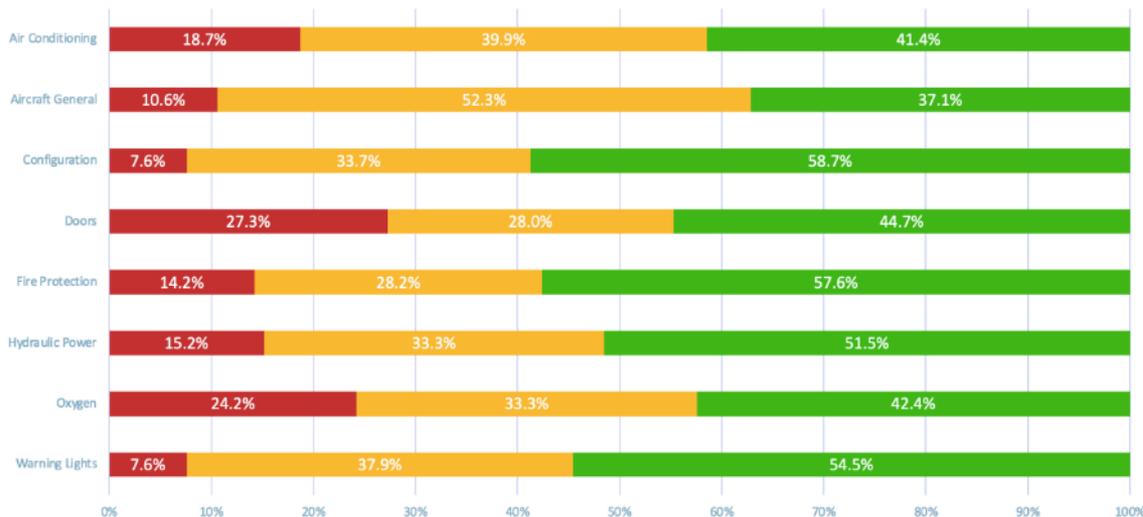


# Regional Carrier: Boeing 737 Max Return to Service



**2,152**  
Pilots

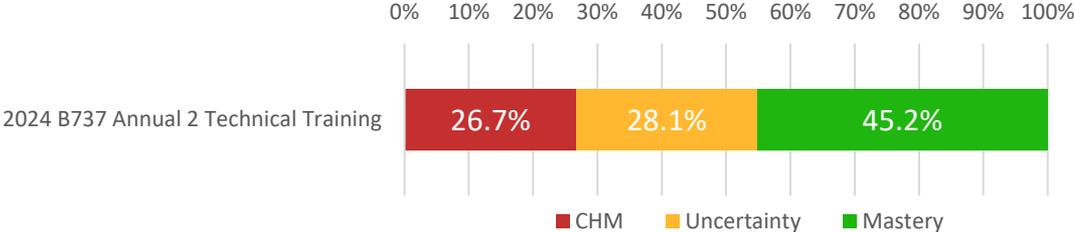
## Knowledge Profile



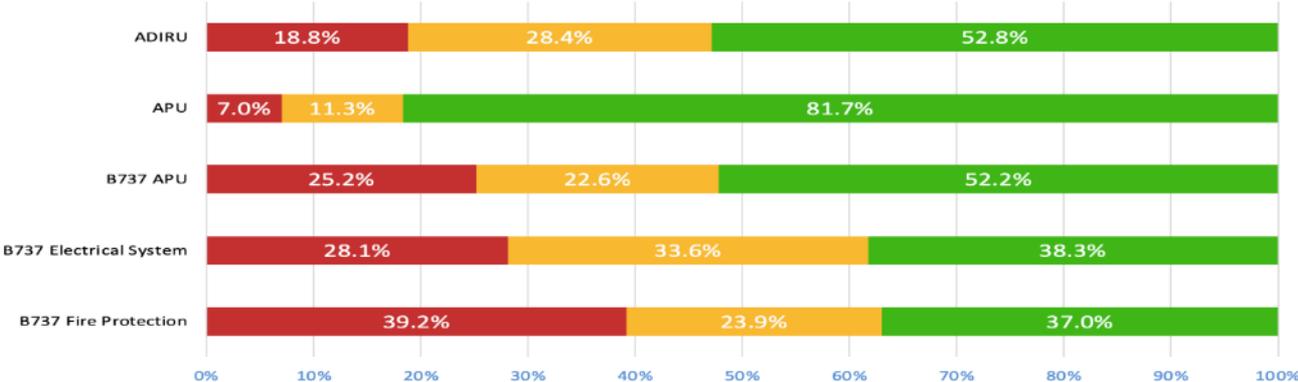
**40 minutes**  
on average to complete.

# 2024 B737 Annual AGT

December 2023 – March 2024



## Knowledge Profile



# Airforce Pilot Training

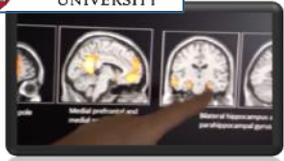


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*Adaptive Learning in High-Stakes Work Environments*





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